Examining interaction within STEM Web Broadcasts

Conference or Workshop Item

Examining Interactions in STEM Web Broadcasts

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Aim

To investigate the impact of embedded interactive tools (widgets) in live web-broadcasts on learning.

Context

Inquiry and experiential learning are key pedagogical methods in STEM curricula. As part of the OU's supported opening learning approach, lab-based broadcasts provide online and distance students an opportunity to observe and engage in practical science demonstrations through synchronous (real-time) methods.

Interaction is crucial to maximise student learning. Empirical data (Martin, Parker & Deale, 2012; Kim, Kim & Han, 2013) suggest that synchronous media:

- Add value to learning through real time discussions
- Provide instantaneous feedback
- Enhance student connectedness, interest and engagement

There remains a gap in the type of pedagogical strategies that promote interactivity in synchronous environments.

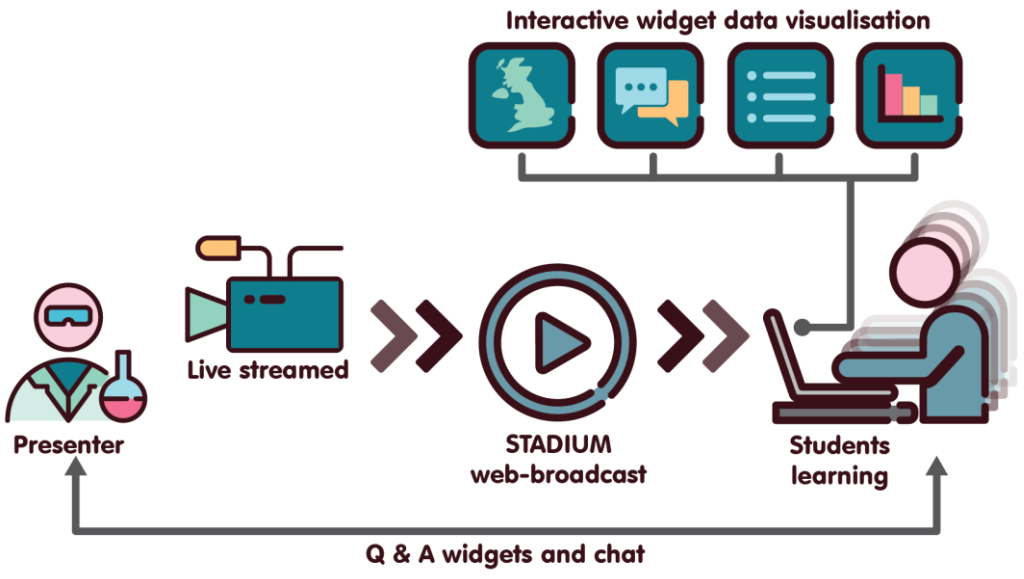

Figure 1. Schemata of live-stream web-broadcast

Areas of Investigation

- Social Presence
- Student Motivation
- Interactivity
- Effectiveness

Lab-based Broadcasts vs. Online Tutorials

	Stadium Live Lab-Based Broadcasts	Adobe Connect Online Tutorials
Number of Students	~ 10 - > 100	~ 5 - 25
Focus	lab-bench experiment field	whiteboard shared screen
Interactive Techniques	pre-prepared Q&A widgets, chat box	on-screen activities, polling, raise hand, applaud, chat box, microphone
Instructional Strategy	situated presentation	dialogue
Motivational Factors	curiosity excitement companionship	support isolation learning
Technology	multiple HDI cameras, video mixing desk	restricted camera on device
Logistics	production team, presenter and assistant	tutor and assistant

Approach

Observations

- Teaching practice
- Video content analysis

Surveys

- Stakeholders attitudes & perceptions

Tests

- Instructional strategies
- Pre test/post test

Draft Research Questions

The study will address the following areas:

i) Ways collaboration happens between students and presenters.

ii) Adaptations to encourage equality of knowledge development.

iii) Perceptions of stakeholders (i.e. students, lecturers and production teams) on live web-broadcasts.

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Martin, F., Parker, M.A., Deale, D.F. (2012). Examining interactivity in synchronous virtual classrooms. *The International Review of Research in Open and Distance Learning*. 13(3) 227 – 261

Kim, S., Kim, H., & Han, S. (2013) A development of learning widget on m-learning and e-learning environments. *Behaviour & Information Technology*, 32 (2) 190-202